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Early diagnosis and management of dementia in general practice – how do Swiss GPs meet the challenge?

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Summary

INTRODUCTION: In general practice, the diagnosis of dementia is often delayed. Therefore, the Swiss National Dementia Strategy 2014 concluded that action was needed to improve patient care. Little is known about GPs' confidence in and approach to the diagnosis, disclosure and post-diagnostic management of individuals with dementia in Switzerland. The aim of this survey is to assess these elements of dementia care and GPs' views on the adequacy of health care services regarding dementia.

MATERIALS AND METHODS: Cross-sectional postal survey in Switzerland in 2017 supported by all academic institutes of general practice in Swiss universities. Members of the Swiss Association of General Practitioners (n = 4460) were asked to participate in the survey. In addition to the GPs' demographic characteristics, the survey addressed the following issues: GPs' views on the adequacy of health care services, clinical approach and confidence in the management of dementia.

RESULTS: The survey response rate was 21%. The majority of GPs (64%) felt confident diagnosing dementia, but not in patients with a migration background (15%). For neuropsychological testing, three-quarters of GPs collaborated with memory clinics and were satisfied with the access to diagnostic services. At the time of first diagnosis, 62% of GPs diagnosed the majority of their patients with a mild stage of dementia, and 31% with a mild cognitive impairment. The most frequent actions taken by GPs after the diagnosis of mild dementia were giving advice to relatives (71%), testing fitness-to-drive (66%) and minimising cardiovascular risk factors (63%). While 65% of GPs felt confident taking care of patients with dementia, fewer (53%) felt confident in pharmacological treatment, coping with suicidal ideation (44%) or caring for patients with a migration background (16%). Half of GPs preferred to delegate the assessment of fitness-to-drive to an official authority. One in four GPs was not satisfied with the local provision of care and support facilities for patients with dementia.

CONCLUSIONS: Overall, GPs reported confidence in establishing a diagnosis of dementia and sufficient access to diagnostic services. Post-diagnostic management primarily focused on counselling and harm reduction rather than pharmacological treatment. Future educational support for GPs should be developed, concentrating on coping with their patients' suicidal ideation and caring for patients with a migration background.

Keywords: dementia, cognition, general practitioners, health services research, diagnosis

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Introduction

General practitioners (GPs) typically play a key role in timely dementia diagnosis and on-going care of their patients with dementia. However, there is evidence that the diagnosis of dementia is insufficient in general practice [1], resulting in delayed detection of dementia and disadvantages for patients and their caregivers [2, 3]. In Switzerland, the detection rate of cognitive impairment by GPs in an elderly population is low, ranging from 24 to 42% in out-patients [4]. A European key informant survey indicated that the majority of GPs in Switzerland tried to establish a diagnosis of dementia on their own, and only half of them referred a suspected case of dementia to a secondary care specialist [5]. Evidence suggests that disease disclosure does not routinely occur in general practice, despite the fact that it may help patients with dementia and their caregivers with future planning [6, 7], and that GPs are reluctant to speak openly with their patients about dementia [8, 9].

Many reasons why a timely dementia diagnosis might be challenging for GPs are reported in the literature. Typical barriers include the lack of time during consultations [5],

particularly in combination with multiple health issues in older patients [10]. There is evidence that GPs have difficulty conveying the diagnosis when the patient and his/her caregiver are unaware of the symptoms of cognitive decline [10], there is no informant history available [11–13], when GPs lack the training to detect early signs of dementia [14] or when the presenting symptoms are vague [15]. Further obstacles for GPs include their own feelings of uneasiness about carrying out cognitive examinations and difficulties in communicating the diagnosis [16], as well as a lack of patient-centeredness in their diagnostic approach [17]. Moreover, GPs may think that nobody stands to benefit from an early diagnosis because no effective treatment is available [18].

There is also evidence of shortcomings in the health care system and the possibility of support for persons with dementia and their families. In particular, studies have revealed problems with late referral to specialist and social services [19], difficulties accessing and communicating with specialists, GPs' lack of time, low reimbursement and a lack of interdisciplinary teams [20]. Further constraints include delayed detection of behavioural problems, a lack of proactive management of dementia and an increased reliance on pharmacological rather than psychosocial treatment strategies [20]. Another study found a lack of counselling ability about safety and accident prevention in GPs and a lack of caregiver support and conflict management [21]. It is important that GPs are aware of all local resources to alleviate the burden on the patient and his/her caregivers, particularly in the absence of disease modifying therapies [20, 22].

Improving early detection of dementia was one of the aims in the Swiss National Dementia Strategy 2014–2017, because there are multiple benefits for patients, families and resources [23]. Examining GPs' approach to the management of dementia is critical for the planning and development of services.

Thus, the aim of this study is to explore GPs' approach to the diagnosis, disclosure and management of dementia, and their perception of the provision of care and health services for individuals with dementia via a national survey. In particular, this study set out to examine (i) diagnosis and disclosure practice, (ii) frequency of different treatment options in a case vignette of mild dementia, (iii) GPs' satisfaction with post-diagnostic dementia services and (iv) GPs' confidence in different areas of dementia management. Since findings may differ regionally due to political, cultural or residential factors, findings on the demand for dementia-specific health care services were assessed across different regional characteristics.

Materials and methods

Study design and setting

The Centre for Primary Health Care of the University of Basel undertook a national study among GPs across Switzerland in 2017 to measure GPs' attitudes, practice and confidence in caring for patients with dementia, and mild dementia in particular. The survey was part of an observational, cross-sectional study entitled "General practitioners dementia report Switzerland."

Sampling and data collection

All GPs who are members of "mfe" (Swiss Association of General Practitioners and Paediatricians, n = 4460) were contacted by mail in August 2017 and asked to participate in the survey. Paediatricians (n = 450) were excluded from the survey. The letter included a recommendation from all institutes of general practice in Switzerland encouraging the addressees to take part in the study, study information with a link to the online questionnaire, a questionnaire and a stamped, addressed envelope to return the study documents. Since the survey was anonymous, a reminder was sent to all members by e-mail 1 month later.

Measures

The questionnaire assessed GPs' practice in caring for patients with dementia and comprised 66 items in total. The initial questionnaire was developed in German. Content validity was pre-tested among a small group of physicians for readability and acceptability (two of them are listed as authors). Two independent translations into French and Italian were made by professional translators. Translations were assessed by members of the study team. GPs were required to specify their age and gender, the location of their practice (rural, urban or agglomeration of a city and the canton), the year in which they started working in their practice, their satisfaction with dementia-specific education, the average hours of work per week (patient contact and administration) and the number of patient consultations per half day. GPs were also asked to estimate the percentage of their patients over the age of 70.

The items were mostly based on previous questionnaires such as the final report of the "Joint Action on Alzheimer Cooperation Valuation in Europe" (ALCOVE) on timely diagnosis of dementia [24], two questionnaires about GPs' attitudes to dementia [25, 26], or otherwise developed by the authors of the study as indicated below. The items comprised GPs' use of diagnostic tools [24], diagnostic collaborations with other specialists [24], GPs' need for care facilities for dementia patients [25] and their caregivers in the practice's local area, and the stage of dementia at the moment of diagnosis [24]. GPs' confidence in the diagnosis, treatment and care of patients with dementia, with or without a migration background, was also assessed [25, 26]. From a theoretical perspective, a migration background can be understood as a life situation characterised by one's own migration or the migration experience of close family members. The biographical event of a migration may result in peculiarities in life situation which can, among other effects, be relevant to health, leading to health differences between the native and the migrant populations [27, 28]. Additional questions created by the core study team (KB, SG, AUM) were incorporated, such as on the disclosure process and reasons for the diagnostic assessment. Furthermore, GPs' treatment strategies were assessed in a case vignette. The vignette comprised the question "What measures would you take if a patient was diagnosed with early stage Alzheimer's disease (MMSE of 24 and needing some assistance in activities of daily living)?", since that is the disease stage that GPs see most often. GPs were asked to rate the frequency of each item on a 5-point Likert scale (see table S1 in appendix 1 and fig. 2).

Most answers were assessed on a 5-point Likert scale from strongly disagree (1) to partially agree (3) to strongly agree (5) or from always (100%) to half (50%) to never (0%). Multiple answers were possible for certain items, e.g. when GPs had to choose from a set of seven different cognitive assessment tools.

Statistical analyses

All data analyses were conducted using R version 1.3 [29]. Descriptive results were provided across the whole sample using number and percentage (%) for categorical data or mean and standard deviation (SD) for continuous data. Answers on five-point Likert scales such as "agree/strongly agree" and "disagree/fully disagree" were grouped together. We then reported the sum of the two percentages. Additionally, we summarised the Likert scales with their median (Mdn) and interquartile range (IQR) (see appendix 1). Regional patterns in dementia management across Switzerland were displayed using the function "spplot" from the R package "sp". The percentages or medians of variables were displayed across cantons or municipality. To assess the relationship between regional characteristics and GPs' provision with diagnostic assessment possibilities or care, Pearson's chi-squared test was used. Regional differences encompassed urban and rural areas (city, agglomeration of a city, countryside), seven major Swiss regions (see table 1) [30] and three language regions (German, French, Italian). Statistical significance was set at the 5% level.

Results

Sample

Of the 4460 initially contacted GPs, 306 were either no longer practicing as a GP or the letter was undeliverable, leaving a sample of 4154 GPs. A total of 882 GPs (21%) returned the questionnaire. We found no strong evidence for a non-responder bias for gender ($p = 0.62$) but did find a small over-representation of German-speaking GPs (79% in the survey, 75% in the population, $p = 0.046$). The demographic, regional and professional characteristics of the resulting total sample of 882 GPs are presented in table 1. In terms of responder participation, the survey covered all regions across Switzerland.

GPs' diagnosis and disclosure practice

More than half of GPs (57%) stated that caring relatives often asked for a diagnostic assessment having noticed cognitive impairment or behavioural changes. Approximately half of respondents reported that cognitive impairment or behavioural changes were frequently noticed by patients (49%) or by GPs themselves (45%). A third of GPs initiated a diagnostic assessment due to an official cause such as a fitness-to-drive assessment or establishing a last will document. Eight percent of GPs initiated a diagnostic assessment in the context of a screening test, meaning that they "proactively" asked older patients at risk of dementia about their memory and offered a screening test (see table S1, appendix 1).

Sixty-four percent of GPs felt confident in the early diagnostic assessment of patients with cognitive impairment (only 10% did not, 26% felt partially confident, see table S2, appendix 1). However, half of the respondent GPs felt unconfident in carrying out an early diagnostic assessment if their patients had a migration background. While 10% of GPs felt unconfident in the early diagnostic assessment of patients with cognitive impairment, up to 52% felt unconfident when patients had a migration background (table S2). The most frequently used tests to assess cognitive impairment and the specialist with whom GPs worked for the diagnostic assessment are reported in table 2.

Three-quarters of GPs were satisfied with the access to diagnostic services such as memory clinics or referral to specialists. Only 13% of respondents reported having insufficient access (see table S3, appendix 1). There was a significant difference in terms of access to diagnostic services between language regions ($\chi^2 = 79.3$, $df = 8$, $p < 0.001$) (fig. 1) but not between rural and urban regions ($\chi^2 = 11.6$, $df = 8$, $p = 0.167$). French-speaking GPs were less satisfied with their access to diagnostic services compared with German-speaking GPs. In particular, GPs of the canton Valais (n = 19) were on average only partially satisfied with the provision of diagnostic assessment possibilities (table 2).

Three-quarters of respondents reported often disclosing the diagnosis themselves. Only 9% of respondents almost never or never disclosed the diagnosis themselves (table S1). The disclosure usually took place with the patient and their relatives (89.6%), and less often with the patient alone

Table 1: Demographic, regional and professional characteristics of the respondent GPs (n = 822).

Variable	n* (%)
Gender (male)	617 (70.0)
Age (years) (mean, SD)	55.8 (8.86)
Language region	
German	692 (78.5)
French	151 (17.1)
Italian	39 (4.42)
Major Swiss regions	
Lake Geneva (GE, VS, VD)	106 (12.3)
Middle Switzerland (BE, SO, FR, NE, JU)	216 (25.1)
Northwestern Switzerland (BS, BL, AG)	161 (18.7)
Eastern Switzerland (SG, TG, AI, AR, GL, SH, GR)	130 (15.1)
Ticino (TI)	38 (4.41)
Central Switzerland (UR, SZ, OW, NW, LU, ZG)	72 (8.35)
Zurich (ZH)	140 (16.2)
Type of area in which practice is located	
City	297 (34.0)
Agglomeration of a city	274 (31.4)
Country side	302 (34.6)
Numbers of years practicing in practice	20.0 (9.92)
Average hours of work per week (patients and administration) (mean, SD)	46.0 (14.2)
No. of consultations per half day (mean, SD)	12.94 (4.74)
Estimate of the percentage of patients over the age of 70 (mean, SD)	36.3 (17.5)

SD = standard deviation Swiss cantons: GE Geneva, VS Valais, VD Vaud, BE Bern, SO Solothurn, FR Fribourg; NE Neuchâtel, JU Jura, BS Basel-City, BL, Basel-Country, AG Aargau, SG St Gallen, TG Thurgau, AI I Appenzell Innerrhoden, AR Appenzell Ausserrhoden, GL Glarus, SH Schaffhausen, GR Grisons, TI Ticino, Ur Uri, SZ Schwyz, OW Obwalden, NW Nidwalden, LU Luzern, ZG Zug, ZH Zurich * If not otherwise specified number of responders (n) and percentage of total (%) are reported.

(9.9%). This consultation lasted 28.5 minutes (SD = 11.9) on average. The most frequent stage of dementia at the moment of first diagnosis was mild dementia with an MMSE of 20-30 and difficulties in activities of daily living (62.5%). Thirty-one percent of respondents reported that MCI is the most frequent stage of dementia at diagnosis. Only 6.2% of GPs reported that the stage of dementia at the moment of diagnosis was moderate with a MMSE of 10-19.

GPs' post-diagnostic strategies and interventions in early dementia

In the case vignette of a patient diagnosed with mild dementia, the most commonly implemented strategies were to counsel relatives (71% frequent and always), to test fitness-to-drive (66% frequent and always) and to minimise cardiovascular risks (63% frequent and always) (fig. 2 and table S4, appendix 1). The least used measures were pharmacological therapy with either acetylcholinesterase inhibitors or memantine (29% frequent and always), a wait-and-see strategy with no intervention (watchful waiting) (21% frequent and always), to send patients to other therapies involving music, painting, dancing or coaching (21% frequent and always) and home visits to assess specific living conditions (12% frequent and always). The use of pharmacological combination therapy with acetylcholinesterase inhibitors and memantine was almost never implemented (3%). GPs planned a follow up visit after an average of 3.7 months (SD = 2.3). While 53% of respondents felt confident in pharmacological therapy, 18% did not feel confident in this domain and the rest felt partially confident (29%). Moreover, almost half of the respondent GPs would like to delegate the assessment of fitness-to-drive of patients with cognitive impairment to an official authority, while 36% did not want to do so.

Table 2: Diagnostic tools and specialist allies to assess cognitive impairment.

Variables	n	% (of the total n = 882)
Tests		
Mini-Mental-Status-Examination (MMSE)	749	84.9
Clock Drawing Test	739	83.8
Trail Making Test (A and B)	386	43.8
Montreal Cognitive Assessment (MoCA)	149	16.9
DemTect	52	5.9
BrainCheck (as a case-finding tool)	52	5.9
CERAD-Neuropsychological Battery	18	2.0
Specialists		
Memory Clinic (outpatient)	668	75.7
Neurology (outpatient)	334	37.9
Neuropsychology (outpatient)	287	32.5
Geriatrics (outpatient)	161	18.3
Psychiatry (outpatient)	118	13.4
Geriatrics (inpatient)	85	9.6
Neurology (inpatient)	21	2.4
Psychiatry (inpatient)	21	2.4

Care and support of patient with dementia

Two-thirds of GPs felt confident caring for and supporting their patients. Only 7% of GPs felt unconfident caring for and supporting their patients with dementia (table S2, appendix 1). However, in caring for patients with a migration background, only 16% of GPs felt confident and 49% of respondents stated that they did not feel confident with these patients (table S2). Thirty percent of respondents felt unconfident handling suicidal ideation of patients with early dementia (table S2). Half of the respondents considered the local provision of care and support facilities as sufficient. However, there was some evidence for regional dif-

Figure 2: Boxplots of frequency of actions after the diagnosis of mild dementia. The frequency of taking a certain measure is measured numerically in percent with 100% meaning always, 50% meaning in half of the cases and 0% meaning never. AChEI: acetylcholinesterase inhibitor, AD: Alzheimer's dementia

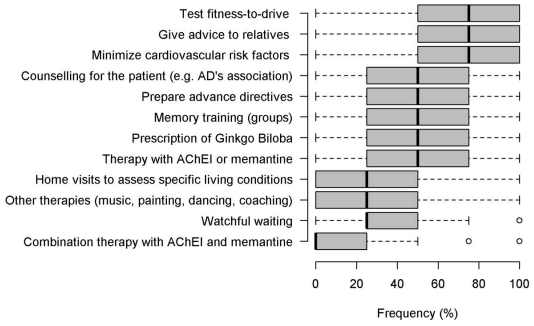
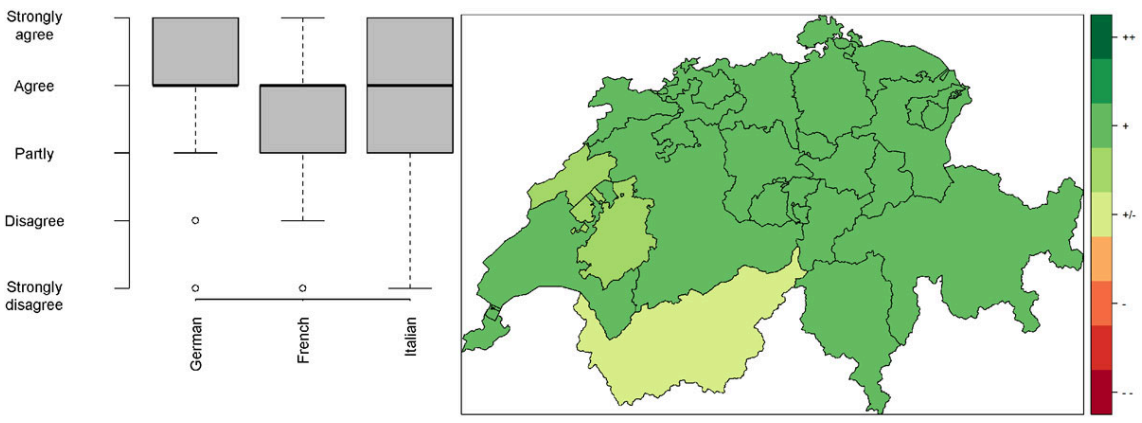


Figure 1: Boxplot (left) and map (right) of satisfaction with the access to diagnostic assessment possibilities for patients with cognitive impairment across language region. The map displays the median agreement across cantons. ++ = strongly agree (satisfied), +/- partially agree, -- strongly disagree (not satisfied)



ferences in the perception of the provision of care facilities across the seven major Swiss regions (χ^2 = 37.3, df = 24, p = 0.041), but not across language regions or the urban-rural regions. In particular, GPs in the rural cantons of Jura (n = 7) and Uri (n = 2) reported insufficient provision of care facilities (fig. 3), while the regions of Geneva, North West Switzerland, Tessin and Zürich reported sufficient health care facilities.

GPs stated that memory training (46.4%), vacation offers (43.4%), night care (43.0%) and day care (41.3%) were needed (see table S5, appendix 1). GPs who declared that the provision of care facilities was insufficient (n = 218) most often required day care (58.3) and memory training (58.3) as well as night care (50.9).

Discussion

This survey of GPs in Switzerland has revealed a very positive approach to dementia care, with more than 60% of respondents feeling confident in diagnosing dementia and in caring and supporting patients with dementia. Health services were considered sufficient; three-quarters of respondents stated that there was sufficient access to diagnostic services for referring patients with cognitive impairment, and half of respondents stated that the regional provision of care facilities was sufficient for patients with dementia.

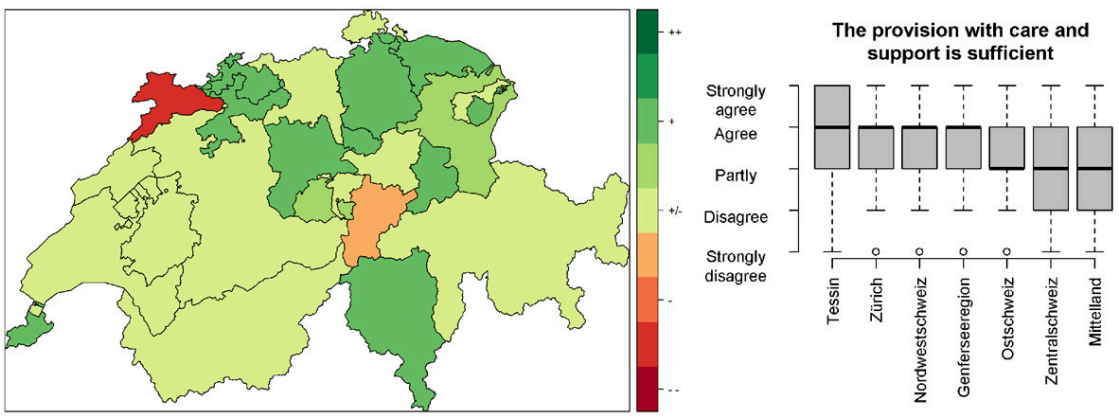
Post-diagnostic management of individuals with mild dementia mostly consisted of counselling relatives, testing fitness-to-drive and minimising cardiovascular risk factors. However, we also detected some gaps in post-diagnostic support services for people with dementia and their carers, as well as in certain aspects of GPs' confidence in the diagnosis and management of dementia care. In particular, up to one fifth of respondents did not feel confident with the pharmacological treatment of patients with dementia, one third felt insecure in coping with patients' suicidal ideation and half of respondents did not feel confident managing patients with a migration background. Furthermore, one quarter stated that the provision of care facilities for patients with dementia was insufficient.

One of the core areas of the Swiss National Dementia Strategy [23] and a consensus conference on the diagnosis and treatment of patients with dementia in Switzerland [31] was to improve access to dementia diagnosis and to stress the importance of early detection to help prepare families for future challenges. Screening tests play a crucial role in assessing cognitive impairment in general practice. Currently, the Mini-Mental State Examination (MMSE [32];) is the most commonly used scale for the assessment of cognitive disorders. This is also the case in other European countries [33]. The case-finding ability of the MMSE is best when confirming a suspected diagnosis in specialist settings [34]. However, in general practice, the utility of MMSE in the detection of dementia has been challenged due to its false-positive rate of 86% when adopting the cut-off point of 26. More stringent cut-off points of 24 and 21 lead to some increase in the predictive value in this sample, resulting in false-positive rates of 78% and 59% respectively [35]. Furthermore, there is limited evidence for detecting mild cognitive impairment with the MMSE, with a sensitivity of 78.4% and a specificity of 87.8 [34]. Therefore, the MMSE should not be used in isolation to confirm or exclude dementia [33] or to identify MCI patients who could develop dementia [36]. The current findings showed that the majority of respondents used the MMSE in combination with the Clock Drawing Test to assess cognitive functioning. This procedure shows higher sensitivity and specificity in the detection of mild Alzheimer's disease than using the MMSE or the Clock Drawing Test alone [37, 38].

For the detection of MCI, the use of both tests (MMSE and Clock Drawing Test) still shows poor clinical utility in general practice [37, 39]. An alternative method to assess cognitive impairment is the Montreal Cognitive Assessment (MoCA [40];) [41]. The MoCA provides additional items measuring executive functions [42]. Results from a meta-analysis indicated that the MoCA was the best tool for the detection of mild cognitive impairment among patients over 60 years of age when compared with the MMSE [41]. For screening of cognitive impairment in general practice, the MoCA threshold of 26 appeared optimal [43].

The current findings indicate that only 17% of the respondent GPs used this test when they had a clinical suspicion of cognitive impairment. One reason for the frequent use of the MMSE rather than another test to assess cognition might be due to the fact that health insurance companies in

Figure 3: Regional differences in the perception of the provision of care and support facilities. The median across all cantons of Switzerland is presented in the spatial plot (left), and across seven major Swiss regions in the boxplot (right). ++ = strongly agree with sufficient provision of care and support facilities, +/- partially agree, -- strongly disagree with sufficient provision of care and support facilities.



Switzerland suggest MMSE values to verify assumption of costs for anti-dementia treatment. In addition, MoCA normative data have only very recently become available for German-speaking Europe [44].

In 55% of European countries the diagnosis of dementia frequently occurred at a moderate stage, which is currently considered a late stage of diagnosis, when activities of daily living, relationships, behaviour and quality of life are already significantly challenged by cognitive decline [24, 45]. In contrast, most Swiss GPs reported a mild stage of dementia, with the MMSE ranging from 20-30 and difficulties in activities of daily living, at the moment of first diagnosis. This finding might be related to GPs' collaboration with specialists such as memory clinics and neurologists for further diagnostic assessments and their access to diagnostic services. In Germany, recent results from a cross-sectional survey indicated that early recognition and dementia care management was highly appreciated by GPs, who considered it feasible or wanted it to be implemented in routine care [46]

A frank disclosure of the diagnosis of dementia helps the patient and his/her caregivers to cope with the situation and to develop a strategy for the future [47]. The diagnostic disclosure requires time, in particular so that the patients' deficiencies and resources, the social situation and his/her biography can be understood. In this context, the currently reported average of 30 minutes for disclosing a diagnosis seems adequate and necessary. Furthermore, the majority of respondents reported disclosing the diagnosis to their patients, and also informing both their patient and his/her caregiver themselves. On the one hand, Australian GPs also preferred disclosure to the patient with his/her caregiver present due to issues of confidentiality and the importance of offering hope [10]. On the other hand, a German study found that most GPs described difficulties disclosing the diagnosis of dementia, and said that they were more likely to give the diagnosis to family members rather than to their patients, thereby avoiding the words 'dementia' or 'Alzheimer's' in discussions [48].Thus, communicating the diagnosis to the patient and his/her caregiver may raise various ethical questions such as how to balance the different communicative needs of patients and their caregivers, clarity versus sensitivity in delivery of the diagnosis, and whether to minimise or expose interactional difficulties and misunderstanding to enrich patient understanding and involvement [49]. Consequently, GPs need training and guidance in delivering a diagnosis and in strategies to optimise patient and caregiver participation [49].

The demographic changes accompanying an aging population will increase the demand for services, while regional circumstances may hinder adequate access to health care services. An Irish study showed that rural GPs felt geographically disadvantaged when accessing diagnostic services, and that both rural and urban GPs experienced considerable time delays accessing specialist diagnostic services [50]. In the current study, we could not find systematic differences in the access to diagnostic services between rural and urban areas, but did find differences between language regions. French-speaking GPs felt significantly disadvantaged in their access to diagnostic services. In particular, rural cantons such as Valais (n = 19), Fribourg (n = 20) and Neuchâtel (n = 20) reported limited access (see fig. 1). Consequently, the access to diagnostic services should be improved in these regions.

We also found regional differences in the provision of care facilities. GPs in the cantons of Jura and Uri reported insufficient provision of care facilities (see fig, 3). These findings are of particular importance since rural areas are expected to experience accentuated aging due to the migration of young adults and the arrival of older people [51]. The major economic burden of dementia was found to be the costs of care [52], which is why certain rural cantons might lack cost-intensive care facilities. Our results suggest that broader structural changes are needed in these areas, including day and night care and memory training to better meet the needs of the elderly with dementia and their families

GPs' post-diagnostic strategies and interventions in the early stages of dementia revealed a focus on non-pharmacological interventions including assessing fitness-to-drive, caregiver counselling and interventions to minimise cardiovascular risk factors. On the one hand, testing fitness-to-drive at the moment of diagnosis may also be a reverse cause mechanism: cognitive screening is often undertaken at the time of the fitness-to-drive assessment and reveals the dementia. On the other hand, the focus on assessing fitness-to-drive is important since individuals with mild dementia may have limited executive functions, which may affect their driving aptitude [53]. However, mild dementia does not a priori exclude the driving capability, as opposed to the case of moderate dementia, with no further driving capability [53, 54]. Furthermore, testing the driving capability entails certain challenges such as concerns about damaging the patient-physician relationship and uncertainties about the GP's own legal role [55]. In fact, almost half of the physicians in our survey would welcome the option to delegate the assessment of fitness-to-drive to an official authority. Nevertheless, Pentzek and colleagues (2015) [55] recommended raising the issue of driving in patients with dementia, since it is a prerequisite for resource-oriented and patient-centred management.

The current study indicated that almost one fifth of GPs felt unconfident with pharmacological treatment of their patients and that symptomatic pharmacological treatment was among the least frequently implemented post-diagnostic actions in the case of mild dementia diagnosis. The currently reported confidence levels in Swiss GPs align with the confidence levels of German GPs [25]. GPs might be insecure about the indication of and justification for prescribing quite expensive drugs (except Gingko biloba) with a rather low level of clinical effectiveness. In mild to moderate Alzheimer's disease, results have been equivocal and no disease modifying agents are either licensed or can be currently recommended for clinical use [56]. France has very recently stopped reimbursing anti-dementia drugs, which is also in line with a recent systematic review funded by the Agency for Healthcare Research and Quality [57], which does not support pharmacological treatment. Another possible explanation for the current findings of rather low anti-dementia drug prescription by Swiss GPs might be based on the potential negative implications of polypharmacy and the side-effects for patient safety. A recent Danish study indicated that people with dementia were more frequently exposed to polypharmacy,

as well as to potentially inappropriate medication [58]. Furthermore, a systematic review of a risk-benefit assessment of dementia medications indicted that cholinergic side effects were clinically significant and could be especially detrimental in the frail elderly population in which the risks of treatment outweigh the benefits [59].

The current study found that GPs felt less confident in managing patients with a migration background. A Dutch study also described obstacles to the diagnosis of dementia in non-western, elderly migrants in memory clinics [60]. The authors indicated that memory clinics were not well prepared for non-western, elderly migrant patients. One problem was that health professionals lacked knowledge about important obstacles in intercultural dementia diagnostics such as language barriers, cultural differences, low level of education and illiteracy, ignorance about dementia, shame, and special care expectations of patients and their families [60]. In Norway, there is evidence that immigrants receive less dementia diagnosis and treatment than Norwegians, indicating a lack of cultural validity of the assessment tools, linguistic barriers and challenges for general practitioners due to the migration background of their patients [61]. Furthermore, studies of help-seeking among various ethnic groups in the US have reported that many do not prioritise dementia as a health issue, given more pressing concerns [62]. Consequently, GP training should consider issues related to migration background as described above.

Almost one third of respondents felt unconfident handling suicidal ideation of patients with early dementia. Despite the fact that risk of suicide in patients with dementia is generally low, suicide is an important issue in dementia. A recent review found that Alzheimer's dementia was associated with a moderate risk of suicide, even many years after the diagnosis of dementia [63]. Risk factors for suicide are hopelessness, depression, mild cognitive impairment, preserved insight, younger age, male gender, highly educated professional status, limitations in activities of daily living, economic stress, functional decline, and lack of social support and a positive history of prior suicide attempts [63–66]. Consequently, it was suggested that physicians needed to consider the potential for suicide in vulnerable individuals, particularly early in the dementia course [63, 64], and emotional needs, especially in patients with young onset Alzheimer's disease [67]. According to Swiss law, assisting suicide without any self-interest is legal [68]. Assisted suicide requires an attestation from a specialist physician which attests the ability to judge. Since psychiatrists usually refuse to attest the ability to judge for such purposes, GPs remain alienated as to how to cope with their patients' suicidal ideation in the case of early dementia.

A limitation of this study was the response rate of 21%. We chose a relatively time- and cost-effective method. In view of this simple strategy, the length of the questionnaire (seven pages and a moderate total respondent burden of 10-15 minutes for the completion of the questionnaire), and other barriers to high response rates [69–71], participation was low. The current response rate is comparable with a randomised study conducted in Western Switzerland and in France, which compared GPs' response rates to a postal versus a web-based survey, and showed a response rate of 22.47% (95% CI 21.07–23.87%) for the postal survey [72]. Although there is evidence that the preferred mode of survey administration is postal [73], response rates are generally low in general practice [74]. Therefore, representative conclusions cannot be made for the current study. Nevertheless, the respondents did not differ from non-respondents in terms of gender and age [75]. However, they did differ in terms of language region, indicating a selection bias towards German-speaking GPs. We cannot exclude the possibility of confounding or alternative explanations for our results, since the survey responses show subjective attitudes and not objective performance. In particular, we cannot exclude the possibility that more GPs participated who were interested in or who were particularly affected by the issue of dementia, and who felt there was a need for such research. Furthermore, social desirability can induce an over-reporting of positive attitudes in reply to questions related to professional standards and behaviour. However, if the confidence in the management of dementia patients with migration background or with suicide ideation is already low in a very motivated sample, we would expect them to be even lower in a sample including less motivated physicians with less interest in the topic. Therefore, despite the low response rate, our findings that GPs lack confidence in coping with suicidal ideation and with patients with a migration background, suggesting a particular need to support less experienced GPs, remains valid. A further limitation is that we only assessed the attitudes of GPs on early dementia recognition, omitting the patients' and relatives' views on this topic. However, we believe that GPs play a crucial role in designing and putting into practice health services and health policy to increase the health outcomes of their patients. Understanding and assessing GPs' knowledge, attitudes, behaviours, practices and their views on solutions to health care issues is vital to improving the quality of health care. Nevertheless, our aim for future research is to determine the attitudes of patients with mild dementia and their relatives towards the disclosure of diagnoses of dementia and to explore their needs and experiences regarding dementia management in general practice. A strength of this study was the quantitative assessment of a wide range of GPs' practice patterns for the diagnosis, disclosure and post-diagnostic management of dementia.

Our study identified gaps in Swiss GPs' dementia practice concerning dementia diagnostic assessment. GPs further described difficulties in managing suicidal ideation and dementia patients with a migration background. Moreover, regional variations in health care provision were detected. Our findings may enable the definition of policy priorities to provide training and information, as well as to establish access to diagnostic services and provision of care and support facilities.

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Appendix 1

Supplementary tables

Table S1: Frequency of statements about diagnostic assessment and disclosure.

Statements	Frequent n (%)	50% of cases n (%)	Not frequent n (%)	Mdn	IQR
Reasons for early diagnostic assessment of cognitive decline:					
Relatives report cognitive impairment or behavioural problems	490(57)	205(24)	172(19)	75%	50–75%
Screening test	64(8)	105(13)	635(79)	25%	0–25%
Patient complains about cognitive decline	420(49)	185(21)	262(30)	50%	25–100%
GP detects cognitive decline	378(45)	191(23)	278(33)	50%	25–75%
Official occasion (e.g., test fitness-to-drive, establishing the last will, advance directive, etc.)	276(33)	123(15)	440(52)	25%	0–50%
GP discloses him/herself the dementia diagnosis to the patient	654(74)	148(17)	77(9)	75%	50–100%

IQR = interquartile range; Mdn = median 100% indicates always, 0% never, 50% indicates half of the time.

Table S2: Agreement with statements about confidence in different situations of managing patients with dementia.

Statements	Agree n (%)	Partially agree n (%)	Disagree n (%)	Mdn	IQR
I feel confident in the provision of care for patients with cognitive impairment	573 (65)	245 (28)	60 (7)	4	3–4
I feel confident in the early diagnostic assessment of patients with cognitive impairment.	561 (64)	228 (26)	91 (10)	4	2–3
I feel confident in the pharmacological treatment of patients with cognitive impairment.	467 (53)	252 (29)	157 (18)	4	3–4
I would like to delegate the assessment of fitness-to-drive of patients with cognitive impairment to an official authority.	421 (48)	137 (16)	317 (36)	3	2–5
Suicide ideation of patients with cognitive impairment make me insecure	264 (30)	225 (26)	384 (44)	3	2–4
I feel confident in caring and supporting for patients with dementia with migration background	135 (16)	302 (35)	415 (49)	3	3–4
I feel confident in the early diagnostic assessment of patients with cognitive impairment and migration background	122 (15)	285 (33)	450 (52)	2	2–3

IQR = interquartile range; Mdn = median

Table S3: Agreement with statements about regional provision with health care facilities.

Statements	Agree n (%)	Part-ially agree n (%)	Disagree n (%)	Mdn	IQR
The access to diagnostic services for referring patients with cognitive impairment is sufficient.	644 (74)	120 (14)	112 (13)	4	3–5
In my catchment area, the provision with care facilities is **in**sufficient for patients with cognitive impairment.	218 (25)	207 (24)	449 (51)	2	2–3

IQR = interquartile range; Mdn = median

Table S4: Frequency of strategies/ interventions after a diagnosis of mild dementia.

Strategies	Frequent n (%)	50% of cases n (%)	Not frequent n (%)	Mdn	IQR
Counselling of relatives	613(71)	159(18)	92(11)	75	50–100
Assessment of driving aptitudes	555(66)	131(16)	153(18)	75	50–100
Measures to minimise cardiovascular risks	528(63)	156(19)	149(18)	75	50–100
Prepare advanced directives or to designate a power of trustee	386(46)	202(24)	259(31)	50	25–75
Memory training activities	351(42)	166(20)	321(38)	50	25–75
Prescription of Ginkgo biloba	308(36)	163(19)	381(45)	50	25–75
Refer patient to counselling centre e.g. Alzheimer's association	296(35)	226(27)	325(38)	50	25–75
Pharmacological mono therapy (i.e., acetylcholinesterase inhibitors or memantine)	235(29)	209(25)	388(47)	50	25–75
Other non-pharmacological treatments (involving music-, painting, dancing, coaching strategies or conversations to cope with the situation)	174(21)	147(18)	510(61)	25	0–50
Wait-and-see strategy with no intervention	161(21)	167(21)	464(58)	25	25–50
Home visits to assess specific living conditions	91(12)	124(17)	526(71)	25	0–50
Pharmacological combination therapy (i.e. acetylcholinesterase inhibitors and memantine)	21(3)	41(5)	710(92)	0	0–25

IQR = interquartile range; Mdn = median 100% indicates always, 0% never, 50% indicates half of the time.

Table S5: Most required care facilities for patients with cognitive impairment in the catchment area.

Item	From total (n = 882)		From GPs not satisfied with care facilities (n = 218)	
	n	%	n	%
Memory or activation therapy	409	46.37	127	58.26
Holidays for people with dementia	383	43.42	100	45.87
Night care centre	379	42.97	111	50.92
Day care centre	364	41.27	127	58.26
Voluntary aids	322	36.51	102	46.79
Day and night care centre	238	26.98	87	39.91